Digitization and Innovation in Life Insurance

Beirut, May 3rd 2017
Tim Jehnichen

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Agenda

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1. **The Age of the Consumer** – the strategic challenge for life insurance CEOs
2. **Successful Client Engagement** in Life Insurance as an Enabler
3. **Automation** is one key element of the strategic agenda
4. **Predictive Analytics** – the new core discipline in the Age of the Consumer

The Age of the Consumer
– a strategic challenge for
life insurance CEOs

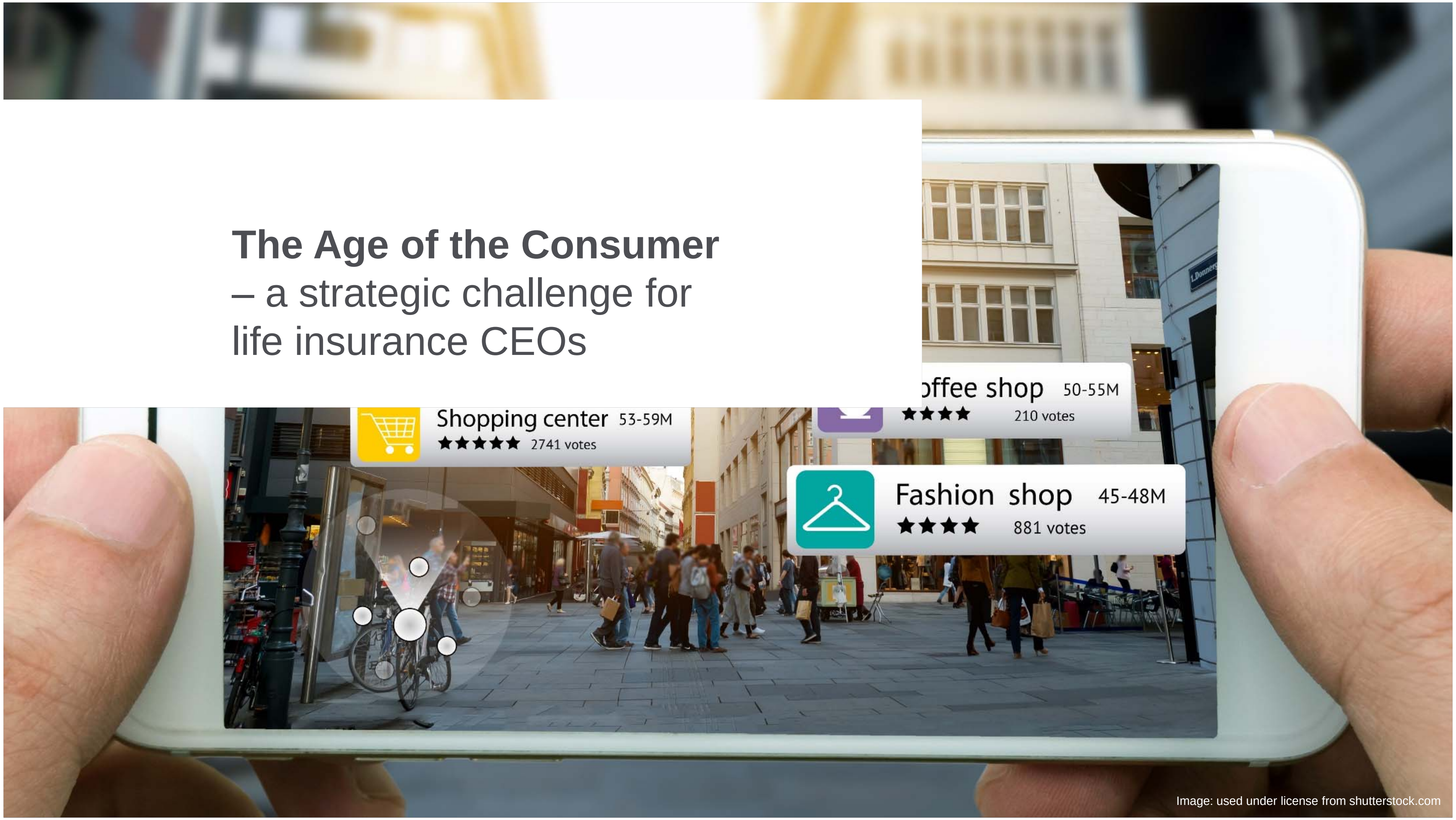

Image: used under license from shutterstock.com

Digitalization creates new champions

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Stock exchange champions

Companies with highest market value (€bn)

	2001	2006	2011	2016
1. rank	GE 406	Exxon 446	Exxon 406	Apple 582
2. rank	Microsoft 365	GE 383	Apple 376	Alphabet 556
3. rank	Exxon 272	Total 327	Petrochina 277	Microsoft 452
4. rank	Citi 261	Microsoft 293	Shell 237	Amazon 364
5. rank	Walmart 260	Citi 273	ICBC 228	Facebook 359

Source: F.A.Z. / F.A.Z.-Grafik fbr.

Digital companies

Triumphal procession of the young offenders

Company	Market value $bn	Jobholder	Company	Market value $bn	Jobholder
Uber (founding year 2009)	60	7.000	**BMW** (founding year 1916)	53	116.000
Airbnb (founding year 2008)	21	5.000	**Marriott** (founding year 1927)	17	200.000
Facebook (founding year 2004)	359	12.700	**Walt Disney** (founding year 1923)	165	185.000
Instagram (founding year 2010)	1 1)	13	Kodak (founding year 1888)	30 2)	145.000 2)

1) Takeover price 2) Jobholder and market value at peak times

Monitoring technological developments becomes extremely important to not fall behind

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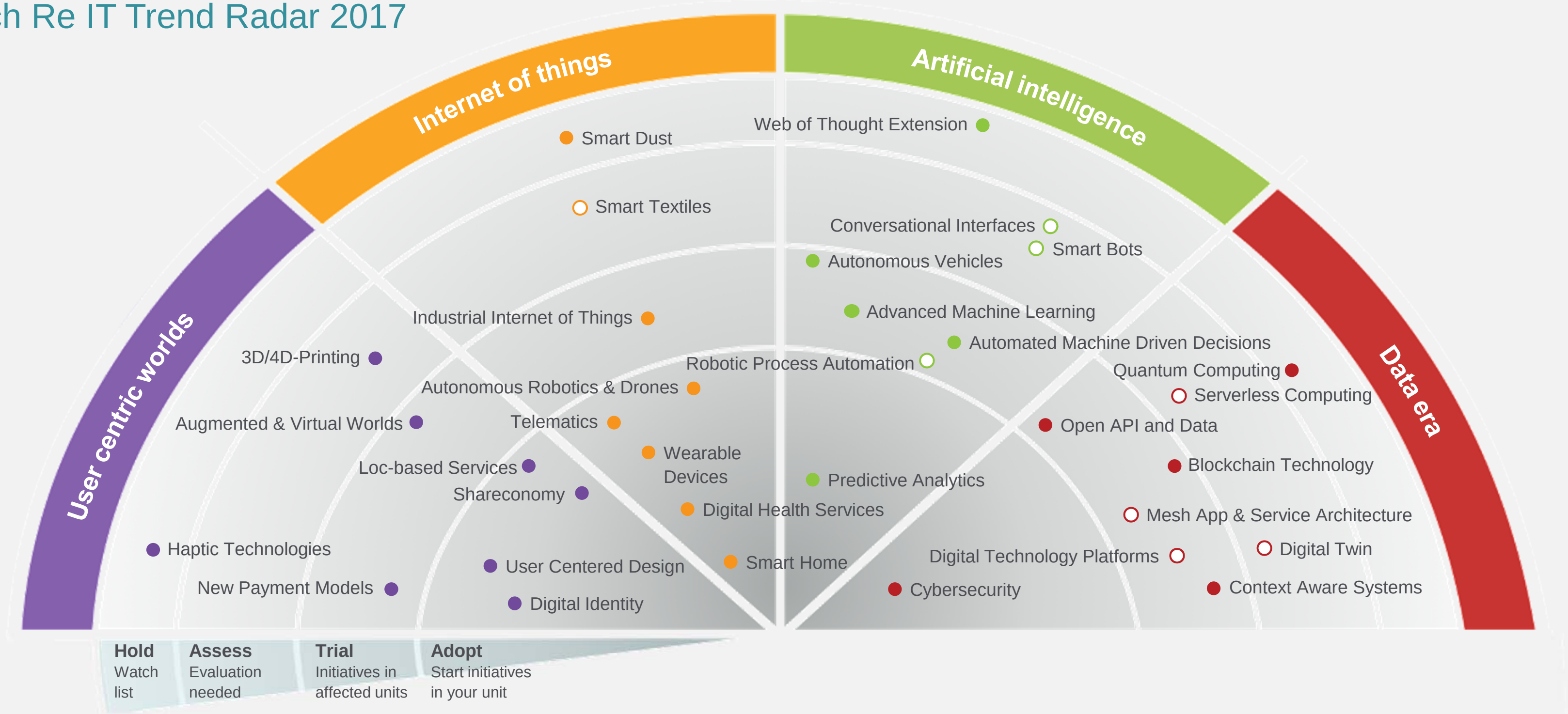
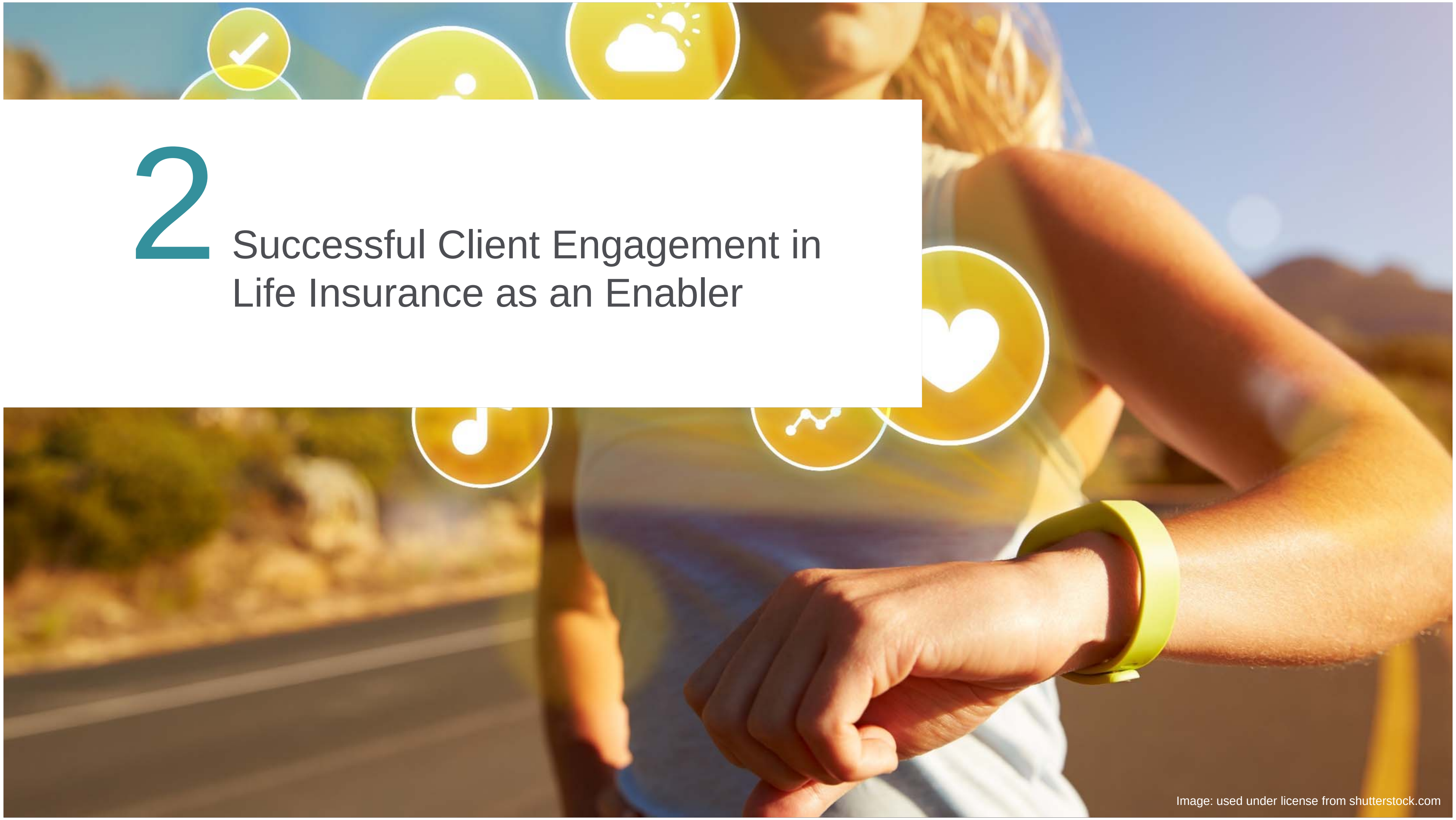
Munich Re IT Trend Radar 2017





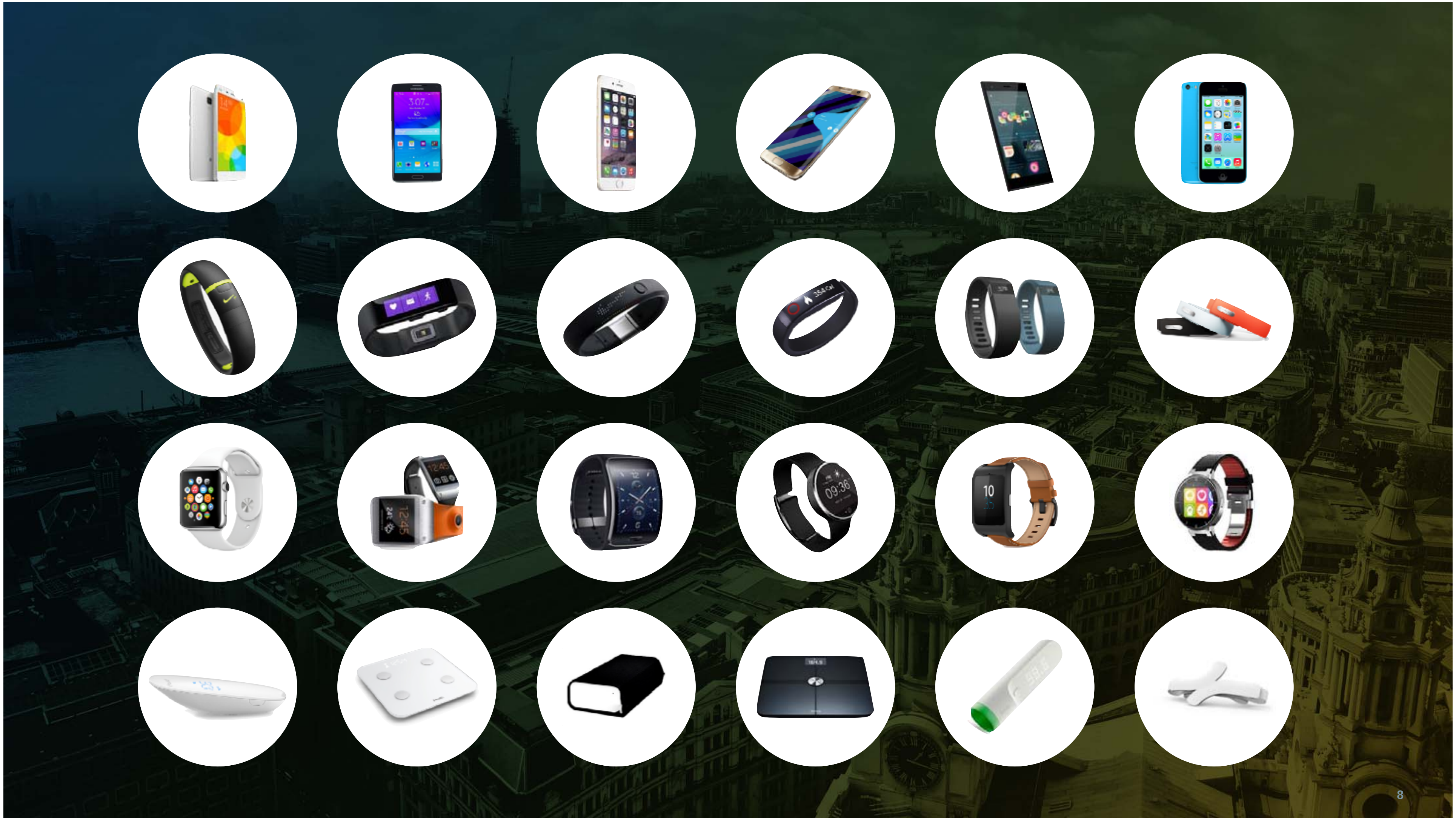
2 Successful Client Engagement in Life Insurance as an Enabler

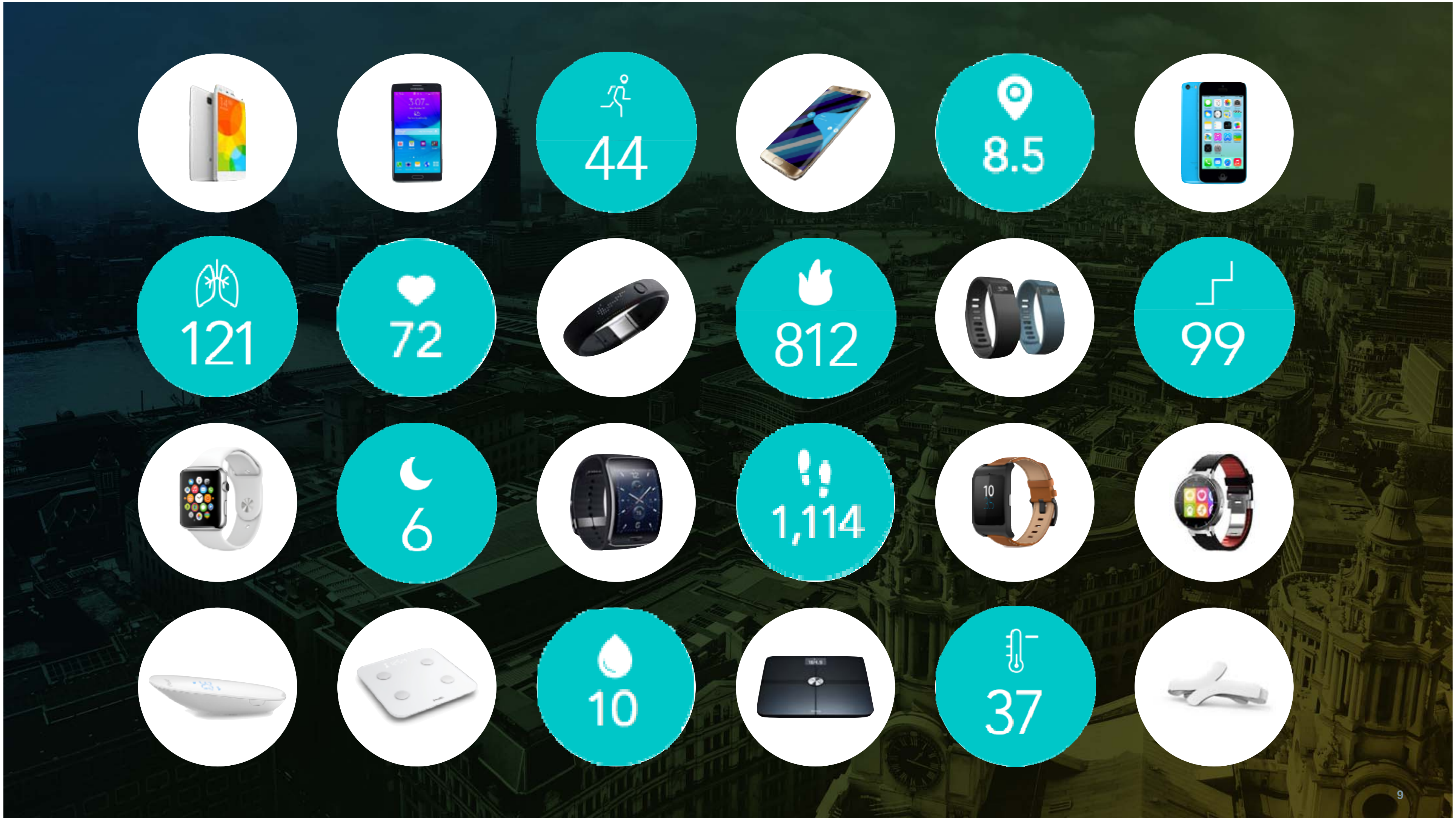
Successful Client Engagement in Life Insurance as an Enabler

Understanding the client better is a key discipline in the Age of the Consumer

Consumer Value chain	New habits / needs	New products	Information & Decision	Underwriting	Engagement / Interaction	Administration	Claims management
End consumer trends	▪ Mobile / Omni cannel ▪ Technology drives demand ▪ Social media ▪ Sharing economy ▪ New online communities	▪ Simple products ▪ Adaptive products ▪ Transparent & fair	▪ Online research – buy offline or online ▪ Individual demands and topics ▪ Transparent & fair	▪ Immediate individual UW ▪ No UW ▪ Connect to New Data	▪ Assistance services ▪ Loyalty offers & Rewards ▪ Connectivity to IOT devices	▪ Online self-service	▪ Fast and fair claims settlement ▪ Assistance services

Start Ups & new solutions




44
8.5
121
72
812
99
6
1,114
10
37

Successful Client Engagement in Life Insurance as an Enabler

What is in it for an insurer beyond engagement?

How to start ?

Munich Re offers a solution in cooperation with FitSense

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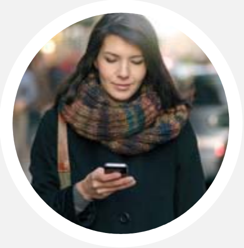
FIT SENSE



IT-platform
to collect new data from users across devices and applications

Data analytics
to turn incoherent data into coherent information

Data modelling
to transfer new data into Life insurance specific solutions

FIT SENSE

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Primary Insurer´s:

“Old Problems“

Lapses	Fraud
Antiselection	UW efficiency
And yours?	...

“Digital Transformation”

Customer engagement	Integrate new data
Risk management	How to start?
User experience	…

We can help you launch your own health engagement program efficiently!

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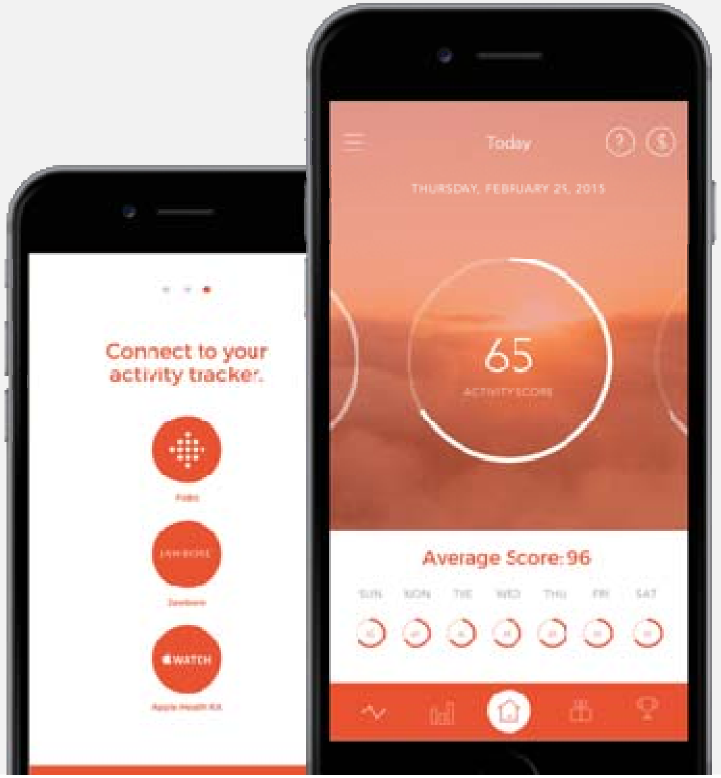
FIT SENSE



Reward your customers for a healthier lifestyle

HEALTH ENGAGEMENT

A white-label, plug-and play health engagement product that allows insurers to launch their own rewards program or pay-as-you-live tariff fast and without massive investments.

- **Reduces lapses**
- **Reduces claims**
- **Attracts new customers**
- **Improve UX (user experience)**

→ We get you started without breaking the bank!

How it works – End consumer perspective

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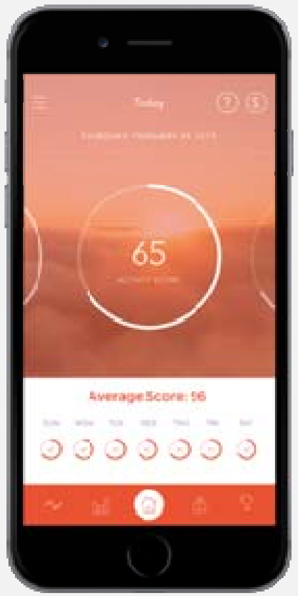
FIT SENSE

1. Connect your activity tracker



2. Track your physical activity

3. Earn real-life rewards

3 Automation is one key element of the strategic agenda

Automation is one key element of the strategic agenda

New technologies impact our client journey positively

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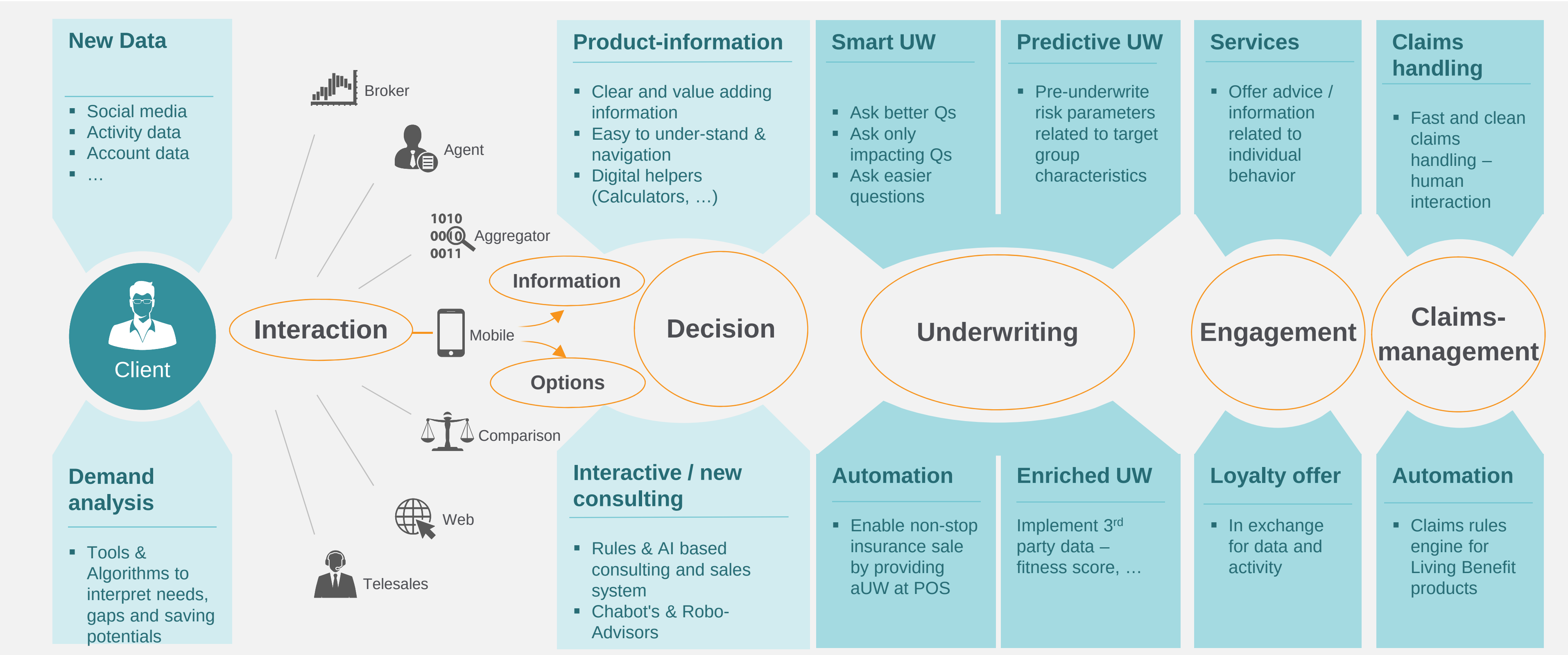

Analytics – the new core discipline in the Age of the Consumer

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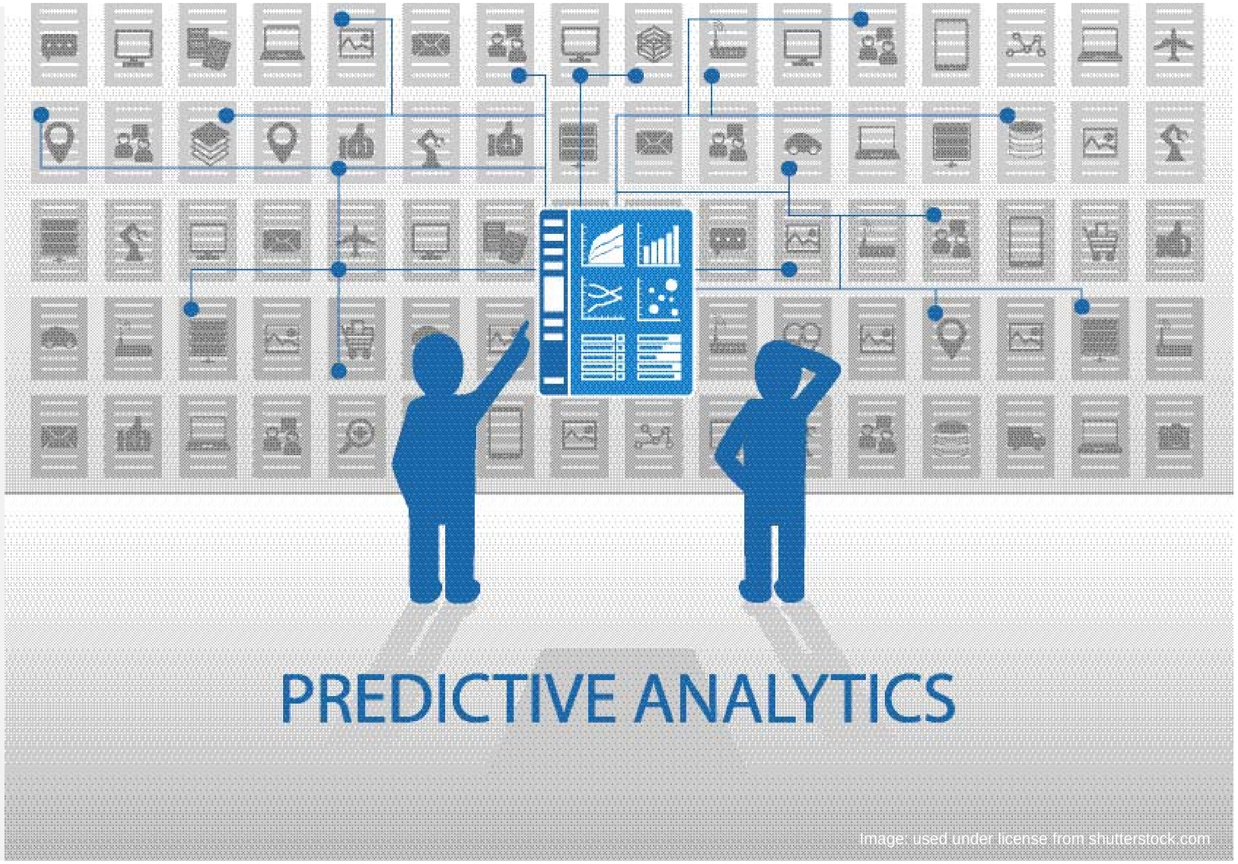

We have upgraded our capabilities for your benefit “We are ready to support you!”

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Technical infrastructure

Platforms	SAP HANA, Hortonworks, sas, Microsoft Azure
Open Source Tools	HIVE, R, kafka, Spark, Solr, hadoop, python, Scala, Stanford NLP, nifi, TEZ, HUE, Elastic Search, Apache Storm, sqoop, Oozie, Ruby Programming Language, Java
Infrastructure Management	Ambari, docker, git, openstack, Cloudify, logstash, artifactory, CHEF, Jenkins

We are performing in many regions state of the art portfolio analyses

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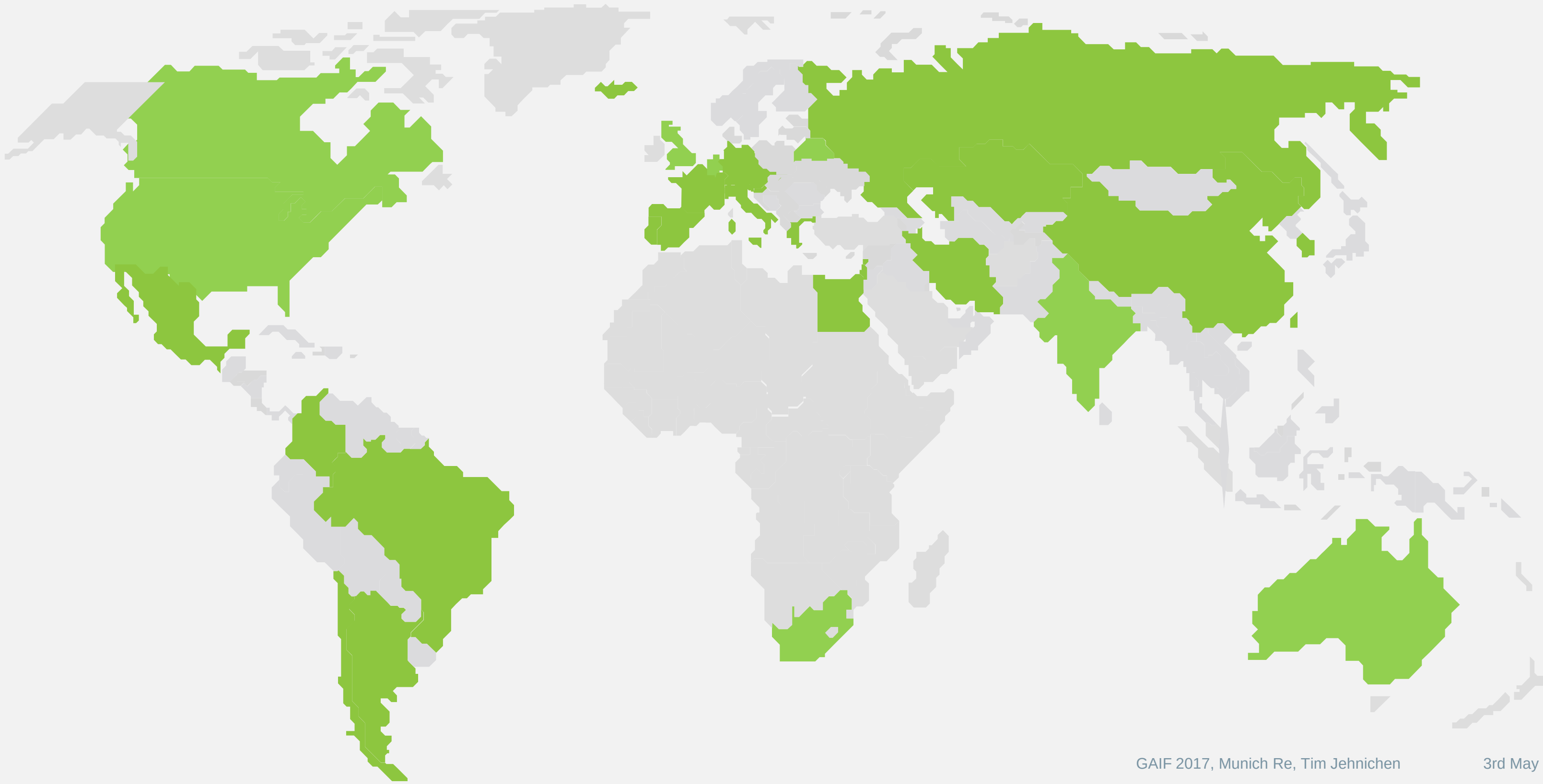

Biometric portfolio analysis is the basis for product development and will evolve further

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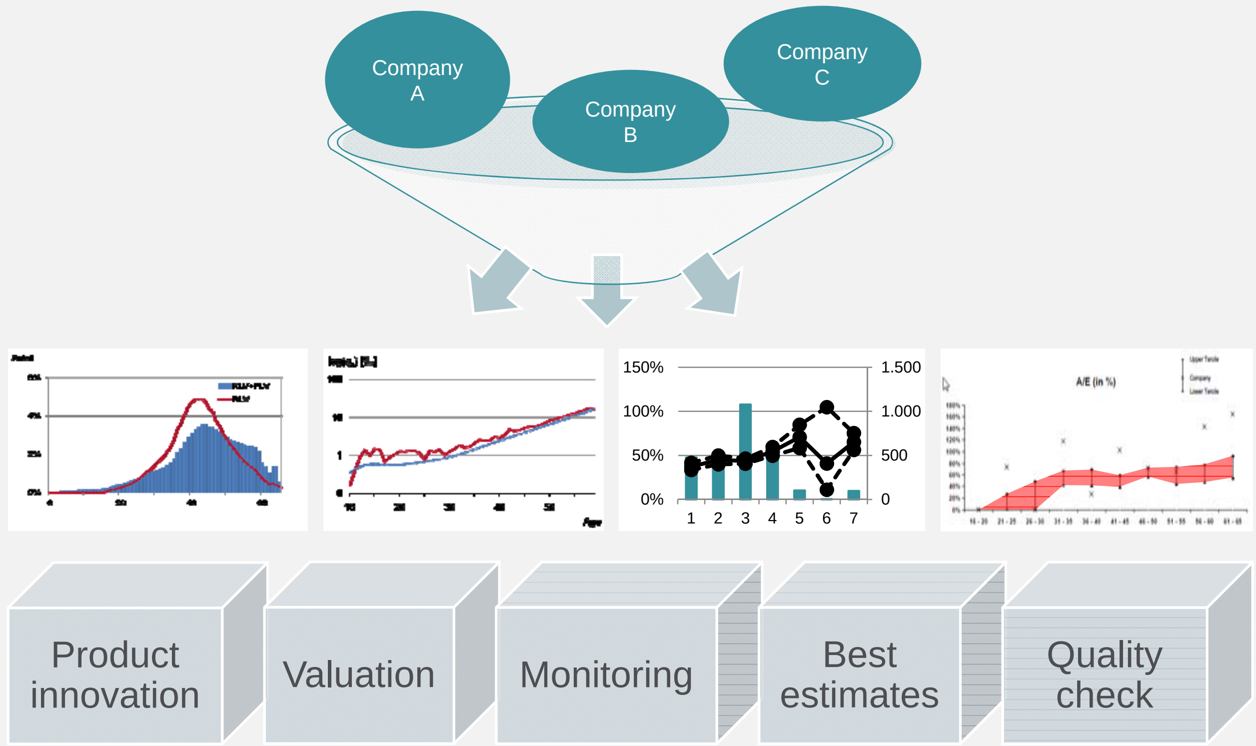
Portfolio data

Data preparation + analysis

Results

Applications



Machine learning provides computers with the ability to learn without being explicitly programmed

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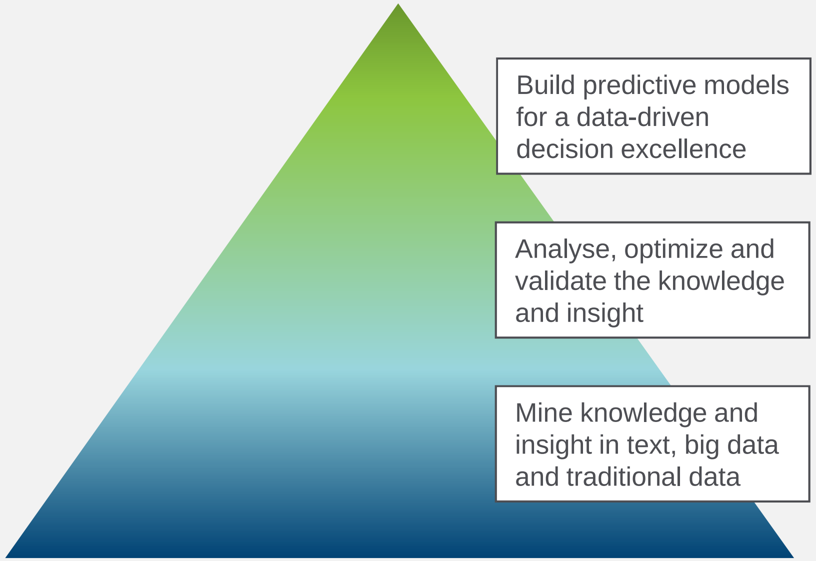
As a type of artificial intelligence (AI), machine learning is a highly automated and efficient technique of data analysis, that allows computers to find hidden insights, without being explicitly programmed

- Subfield of computer science
- Convergence of several disciplines like statistics, brain models, adaptive control theory, psychological models, artificial intelligence and evolutionary models
- While data mining focuses on investigating unknown properties in the data, machine learning focuses on prediction based on properties previously learned from data
- However, data mining and machine learning complement one another in many applications



Source: Nils J. Nilsson - Introduction to machine learning (1998)

To benefit from the high predictive capabilities of machine learning, sufficiently large amount of data is needed

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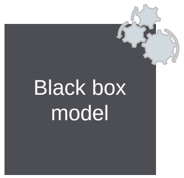
Why is machine learning interesting?

- Able to analyse bigger, more complex data and to deliver faster, more accurate results
- Often have better predictive capabilities than traditional statistical modeling
- Applicable if a target variable is available or not
- Prior assumptions are not necessary since models try to learn directly from the data by minimizing a loss function
- Additional tuning parameter are determined by cross-validation
- Highly efficient and automated model building

What are the limitations of machine learning?

- Quality of model depends on quality of data
- Sufficiently large amount of data is needed to train the models (about 50,000 data points)
- No confidence intervals without bootstrapping



- Limited interpretability of various models
- Applicable, if is not crucial to explain how a decision was arrived at. For example, in underwriting, the insurance company needs to be able to give a reason for a loading

By analysing bigger, more complex data fast and efficiently, AI can improve many existing functions along the value chain

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Sales and marketing | Underwriting | Inforce management | Claims

Applications of artificial intelligence

Target group specific product development

Identification of most effective product parameters to increase sales in target customer group

Increase of sales from existing business

Automatic identification of existing customers, who are likely to buy additional cover or products

Simplified and predictive underwriting process

Dynamic and tailored application questions for optimal balance regarding customer-friendliness and risk management

Pro-active lapse management

Real-time identification of customers likely to lapse, to define pro-active and tailored prevention methods via most promising channel

Automated end-to-end claims process

Straight-through processing of repetitive claims through self-learning system, to improve customer experience and costs

Efficient inbound management

Classification of context and complexity of incoming letters / e-mails, to enable routing to responsible area and set groundwork for automated decisions of simple requests / cases

Artificial intelligence (AI) can provide better and more efficient solutions which create value by increasing sales or improving profitability

Digitization and Innovation in Life Insurance

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AGE of the Consumer is difficult to predict

Large Multinational Insurance Companies are preparing and investing heavily

Conclusion

Data analytics starts with intelligent ways of data collections

Small new players may not replace the traditional life insurance companies but offer interesting cooperation opportunities

Thank you for your attention!

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Backup Slides

But is at the same time a challenge for products and infrastructure…

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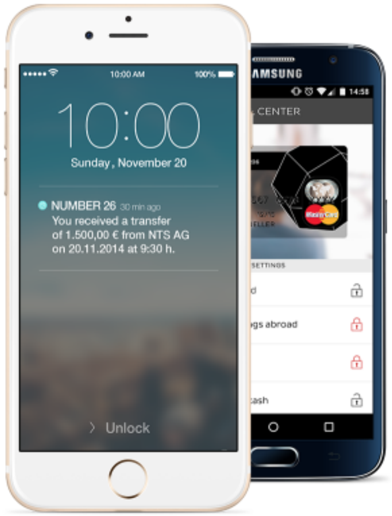
Smart banking with Europe's most modern bank account

The N26 bank account gives you simple and mobile online banking without account management fees. Enjoy the freedom of being able to transfer money anywhere in the world from the mobile app - forget about searching for TAN lists or account numbers. Push notifications and transaction statistics help you to keep an eye on your account activity.

Use the N26 MasterCard to withdraw cash at more than 1 million ATMs worldwide. Transparent pricing



Your account as mobile as you

The first bank account that saves you time!

Quick Start Open your account including verification in 8 minutes	**Fast money transfer** Send money via text message & e-mail to your contacts	**Fast Cash** Draw Cash without costs on all MasterCard cash machines worldwide and in 6000 shops

Source: www.number26.eu/de/

Today‘s manual machine learning approaches can be fully automated in the future

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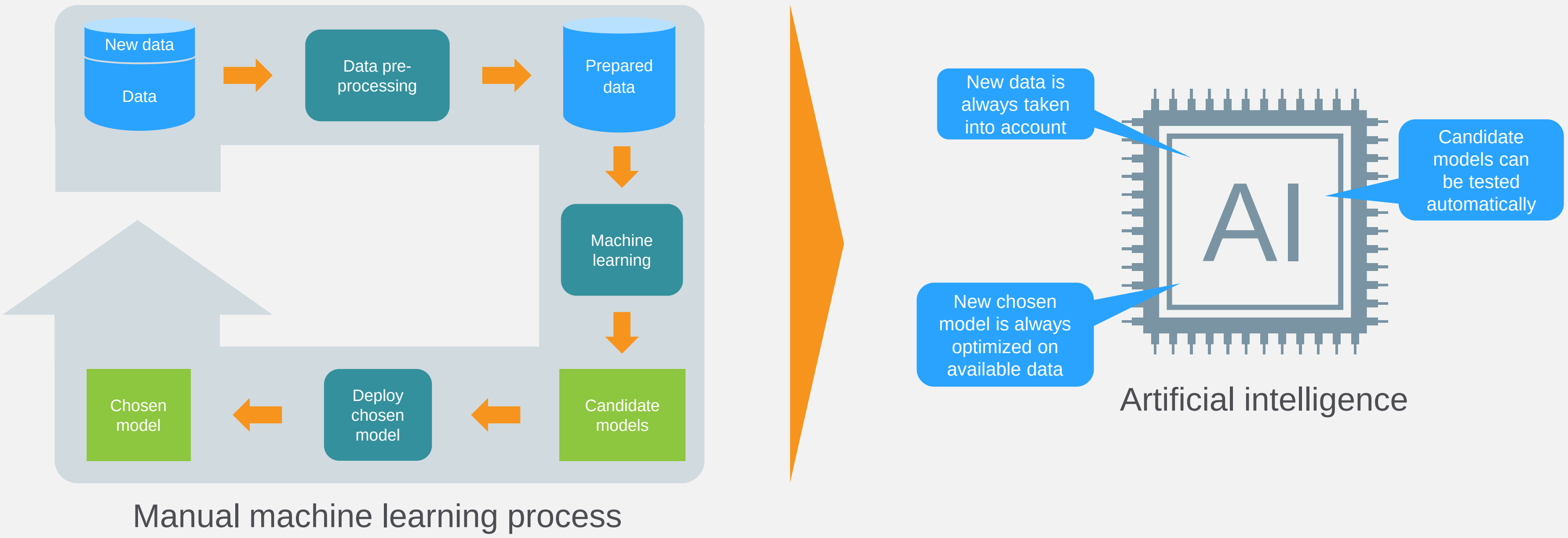

In future, AI can build, train and calibrate machine learning models on its own to provide meaningful results automatically and autonomously